

Weather Systems Processor (WSP)

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BACKGROUND

The WSP has evolved after 11 years of research by the Massachusetts Institute of Technology/Lincoln Laboratory (MIT/LL) and 8 years of field testing of a proof-of-concept WSP in Huntsville, AL, Kansas City, MO, Orlando, FL, and Albuquerque, NM. The WSP will be installed at 34 Airport Surveillance Radar Model #9 (ASR-9)-equipped airports. Graphical and textual products will be delivered to air traffic users and displayed on Ribbon Display Terminals (RDT) and Geographic Situation Displays (GSD). Available products include anomalous propagation (AP)-filtered 6-level weather, windshear/microburst detection, gust front and wind shift prediction, storm motion depiction, and Terminal Weather Information for Pilots (TWIP).



WSP Geographic Situation display and Ribbon Display Terminals

ACCOMPLISHMENTS

- Proof-of-concept WSP products have been evaluated operationally each summer since 1990 using real-time product generation algorithms and user displays. Demonstrations in Orlando, FL, ('90-'92) side by side with the FAA/LL TDWR proof-of-concept system indicated, from an air traffic controller perspective, nearly identical operational benefits. Subsequent demonstrations in Albuquerque, NM, ('93-present) have further validated the WSP operational product suite.
- The Weather Branch has performed two formal evaluations of the WSP proof-of-concept system in Orlando FL ('93-'94), has assisted in the installation and is currently monitoring the WSP proof-of-concept testing on the operational ASR-9 in Albuquerque, NM. The results of these demonstrations are published in FAA Technical Notes.
- The Weather Branch has installed and tested a WSP waveguide modification to the test bed ASR-9 at the FAA William J. Hughes Technical Center (WJHTC). Results and recommendations are published in Technical Note: DOT/FAA/CT-TN98/13.
- The Weather Branch participated in two FAA Screening Information Requests (SIRs) that led to a contract being awarded to Northrop Grumman (September

Efficiency
System



WSP Geographic Situation display (GSD)

1998) for the development of 34 production WSP systems. It is anticipated that the first limited production system will be delivered to the WJHTC for Test and Evaluation (T&E) in December 1999.

- WSP Prototype Installation at New Austin Airport, TX
- Transfer of GFE/GFI Technology to the Development Contractor
- Conduct Technical Center WSP/ASR-9 Test Activities;
 - ✓ Waveguide modification test and checkout
 - ✓ Beam switch test and checkout
- Technical Center WSP Lab Test Activities;
 - ✓ Setup and operation of workstation and meteorological test tools
 - ✓ Software improvement for viewing live AP-corrected 6-level weather
 - ✓ Monitoring live WSP products from proof-of-concept system in ABQ and AUS

- Monitor Contractor Development and Test Activities
- Coordinate WSP Installation at WJHTC

FUTURE WORK

The Weather Branch will participate in and provide support to the Windshear Product Team in the following activities:

- Develop the Operational Test Plan and Test Procedures
- Conduct System Test on the WSP Limited Production Systems (August 2000)
- Continue Lifecycle Support

For additional information regarding the Weather Systems Processor program, please contact:

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